

DETAILED ACTION

Preliminary Amendment

1. The preliminary amendment filed on 9/23/2004 has been entered.

Information Disclosure Statement

2. Citations on the IDS filed on 3/17/2006 have been crossed out because these are foreign references and no abstract or translation has been provided. These foreign documents are neither cited in the specification.

Specification

3. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: claim 59, 80 does not find support in the specification as originally filed.

Claim Objections

4. Claims 111 and 112 are objected to because they should be dependent on claim 105.
Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5. Claims 59, 80, 92, and 107 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

With respect to claims 59 and 80, the amount of clay mineral of at least about 50 wt % fails to satisfy the written description requirement of 35 USC 112, first paragraph since there does not appear to be a written description requirement of the amount of at least about 50 wt % in the application as originally filed, *In re Wright*, 866 F.2d 422, 9 USPQ2d 1649 (Fed. Cir. 1989) and MPEP 2163. While there is support for about 10-150 parts by weight (pbw) clay material per 100 pbw polymer, preferably between about 10-100 pbw on page 8, lines 29-32 of the specification, there is no support for an amount of at least about 50 wt %.

With respect to claim 92 and 107, the amount of “other components” of less than about 10 wt % fails to satisfy the written description requirement of 35 USC 112, first paragraph since there does not appear to be a written description requirement of the amount of less than about 10 wt % in the application as originally filed, *In re Wright*, 866 F.2d 422, 9 USPQ2d 1649 (Fed. Cir. 1989) and MPEP 2163. While there is support for 10 wt % organoclay with 90 wt % alumina trihydrate on page 31, lines 15-16 of the specification, there is no support for there being less than 10 wt % of “other components” as part of the metal hydrate component.

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6. Claims 43, 45-53, 56-58, 62, 77-79, 83, 84, 90-93, 102, 106, 107, and 110 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

With respect to claims 43, 45, 56-58, 62, 77-79, 83, 90, 91, 93, 102, 106, and 110, they appear to improperly recite a Markush group. Consequently, it is impossible to determine which elements of the group are required by the claims. When materials recited in a claim are so related as to constitute a proper Markush group, they may be recited in the conventional manner, or alternatively. For example, if “wherein R is a material selected from the group consisting of A, B, C and D” is a proper limitation, then “wherein R is A, B, C or D” shall also be considered proper (emphasis added). See MPEP § 2173.05(h).

With respect to claims 92 and 107, it is made clear of what the “other components” comprise, i.e., only other metal hydrates or any particulate filler, including organoclay?

With respect to claims 46-53, 84, 92, and 107 they are rejected for being dependent on a rejected claim.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an

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international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 67-74, 80, 81, 83, and 86 rejected under 35 U.S.C. 102(b) as being anticipated by Husband (WO 99/51815, cited on IDS dated 3/17/06).

Husband discloses a pigment product prepare a coated article comprising particulate kaolin particles having an equivalent spherical diameter of less than 0.25 microns and a shape factor of at least 45 (see abstract). In example 3 (page 29), kaolin particles are mixed with styrene-butadiene synthetic latex binder in a total amount of 75 wt %.

In light of the above, it is clear that Husband anticipates the presently cited claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 41, 42, 65, and 113 are rejected under 35 U.S.C. 103(a) as being unpatentable over Husband (WO 99/51815, cited on IDS dated 3/17/06).

The discussion with respect to Husband in paragraph 7 above is incorporated here by reference.

Husband anticipates the presently claimed wt % amount, particle diameter, and particle shape factor; however, Husband does not explicitly disclose the particle number per unit volume.

Even so, given that particle number per unit volume is based on particle shape factor and the amount in vol % as disclosed in the instant specification, it is considered that the presently claimed number per unit volume would be present once the Husband product is obtained.

9. Claims 41, 42, 44, 45, 54-63, 65-84, 86-108, and 110-113 rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta (US 4,234,469, cited on IDS dated 3/17/06) in view of Nishihara (US 6,790,887).

Ohta discloses a composition for use in electrical insulation materials (col. 4, lines 22-23) comprising polypropylene; polyethylene; 10-50 wt % inorganic filler such as talc, kaolinite, or mixtures thereof having a particle size of less than 3 microns (col. 2, lines 47-48 and 58-60); a flame retarder; and optionally a flame retarding assistant such as antimony compounds and boron compounds (col. 3, lines 27-30). The composition can be crosslinked and therefore be thermosets (col. 3, line 48).

Ohta fails to disclose (i) the particle shape factor of the inorganic filler and (ii) the amount of inorganic filler in the an amount of particle number per unit volume.

With respect to (i), Nishihara discloses a composition comprising a flame retardant and teaches that kaolin and talc advantageously have an average aspect ratio (average major diameter/average minor diameter) of 30 or more (col. 19, line 67 to col. 20, line 4). While Nishihara does not disclose “shape factor” *per se*, it is considered that the teachings about higher aspect ratio and therefore more platy fillers suggests that a relatively high shape factor like presently claimed is also advantageous.

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Given that Ohta teaches talc and kaolin as flame retardants and further given that Nishihara teaches that inorganic flame retardants such as talc and kaolin advantageously have relatively high aspect ratios (and therefore shape factors), it would have been obvious to one of ordinary skill in the art to utilize talc or kaolin having a shape factor like presently claimed in order to obtain advantageous properties.

With respect to (ii), Ohta discloses amounts of talc or kaolin in wt % having the presently claimed average particle diameters in amounts that overlap with those presently claimed (see page 8, lines 29-32 of the instant specification) and together with Nishihara teaches the presently claimed shape factors; however, it fails to disclose the amount of kaolin or talc as number per unit volume.

Even so, it is the examiner's position that the amount per unit volume is dependent on the amount of kaolin or talc in the composition and on the particle size and shape factor of the kaolin or talc. Therefore, given that the amount of talc or kaolin and the particle diameter and shape factor of the talc and kaolin read on those presently claimed, it is considered that the amounts taught by Ohta overlap with the presently claimed amount of at least about 1 particle per 100 μm^3 .

With respect to claims 57, 78, and 91, they are rejected because they include limitations to alternative embodiments which are not positively recited.

10. Claims 43 and 45-53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta (US 4,234,469, cited on IDS dated 3/17/06) in view of Nishihara (US 6,790,887) and further in view of Pearson (US 4,311,635, cited on IDS dated 3/17/06).

The discussion with respect to Ohta and Nishihara in paragraph 10 above is incorporated here by reference.

Ohta discloses the use of kaolinite as an inorganic flame retardant, however, it fails to disclose hydrated or calcined kaolin clay.

Pearson discloses a flame resistant composition and teaches that kaolin can be used as a flame retardant in either calcined or non-calcined form but that the preferred kaolin is a hydrated kaolin since it gives the best results in terms of flame retardancy (col. 2, lines 53-62).

Given that Ohta uses kaolin as an inorganic flame retardant and further given that calcined, non-calcined, or hydrated kaolin is suitable for use as an inorganic flame retardant as taught by Pearson, it would have been obvious to one of ordinary skill in the art to utilize a calcined or non-calcined kaolin, especially a hydrated kaolin clay, as the kaolin in Ohta to obtain improved flame retardant properties.

11. Claims 64 and 85 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta (US 4,234,469, cited on IDS dated 3/17/06) in view of Nishihara (US 6,790,887) and further in view of Prigent (US 4,584,333, cited on IDS dated 3/17/06).

The discussion with respect to Ohta and Nishihara in paragraph 10 above is incorporated here by reference.

Ohta teaches that the composition can contain other additives but fails to disclose a silane compound.

Prigent discloses a fire-resistant thermoplastic composition comprising an inorganic loading material such as kaolin and talc (col. 1, lines 43-44) and teaches that the addition of an

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alkoxysilane serves as a coupling agent between an ethylene homopolymer and inorganic loading material and does not require reticulation and has good mechanical properties after aging (col. 1, lines 9-11 and 22-25).

Given that Ohta is open to the use of other additives and further given that alkoxysilanes serves as coupling agents which help promote good mixing and mechanical properties in fire resistant compositions comprising ethylene homopolymers, it would have been obvious to one of ordinary skill in the art at the time of the invention to utilize a silane compound like taught by Prigent in the composition Ohta to improve mixing and mechanical properties.

12. Claims 56, 57, 77, 78, 90, 91, and 109 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohta (US 4,234,469) in view of Nishihara (US 6,790,887) and further in view of Kausch (WO 01/66627, cited on IDS dated 3/17/06).

The discussion with respect to Ohta and Nishihara in paragraph 10 above is incorporated here by reference.

Ohta teaches the use of a flame retardant but fails to disclose an organoclay like presently claimed.

Kausch discloses a flame-resistant polyolefin composition and teaches that organically modified clay (i.e., organoclay) which are prepared by ion exchange (page 6, lines 20-24) provide flame retardant or flame resistant properties (abstract). Kausch further teaches that its composition is free of organic and/or halogenated flame retardants (like those taught by Ohta) are disadvantageous because they emit toxic or noxious gases (page 10, lines 11-25).

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Given that Ohta is open to a variety of flame retardants and further given that organoclays are suitable as flame retardants in polyolefin compositions and do not emit toxic or noxious gases like organic and/or halogenated flame retardants as taught by Kausch, it would have been obvious to one of ordinary skill in the art at the time of the invention utilize an organoclay flame retardant to the composition of Ohta.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the “right to exclude” granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13. Claim 41 and 42 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 14 of copending Application No. 10/561,837 (published as US 2007/0010600). Although the conflicting claims are not identical, they are not patentably distinct from each other because of the reasons given below.

US appl. '837 claims a polymer composition comprising a polymer and a particulate clay filler present in an amount of at least about 1 particle per 100 μm^3 . While does US appl. '837 does not claim the exclusion of organomontmorillonite, it is considered that US appl. '837 claims other embodiments given the generic "particulate clay filler" is claimed

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Conclusion

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The references cited as "X" references on the PCT/GB03/01364 which have not been utilized in the above rejections (GB 2 367 064, Derwent abstract for JP 06-207101, US 5,846,309, WO 00/66657, and FR 2 652 194) because they are cumulative to the rejections of record.

15. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vickey Ronesi whose telephone number is (571) 272-2701. The examiner can normally be reached on Monday - Friday, 8:30 a.m. - 5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on (571) 272-1119. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

6/12/2008

vr

/Vickey Ronesi/
Examiner, Art Unit 1796